

REMARKS/ARGUMENTS

Claims 1-18 are pending herein. Claims 1 and 17 have been amended for clarification purposes only.

Examiner Nasri is thanked for courtesies extended to Applicants' representative (Steven Caldwell) during a telephonic interview on October 19, 2004. Applicants' representative explained that many of the issues raised in the pending Office Action have been addressed and resolved over the course of prosecuting the present application. As discussed during the interview, the following remarks summarize Applicants' arguments and amendments used in previous responses to PTO Office Actions, which overcame many of the old objections/rejections appearing in the current Office Action. During the interview, Examiner Nasri also agreed that he would contact Applicants' representative before issuing a Final rejection in the present application. Otherwise, any subsequent Office Action mailed from the PTO should be non-Final.

1. The PTO objected to the abstract and specification in paragraphs 2 and 3 of the Office Action.

As discussed during the interview, these same objections were asserted by the PTO in the May 17, 2002 Office Action and withdrawn in light of the written remarks submitted in the August 15, 2002 Amendment. As discussed during the interview and in the August 15, 2002 Amendment, with reference to Fig. 1 of the present application, if a distance L between contact point P and the bottom surface of cover plate 5 is assigned the numerical value of $1\text{ }\mu\text{m}$, for example, the equation would read $1/6\text{ }\mu\text{m} \leq Y \leq 1\text{ }\mu\text{m}$. This would mean that adhesive layer 6 would have a thickness Y which ranges between $1/6\text{ }\mu\text{m}$ and $1\text{ }\mu\text{m}$. A search of the U.S. PTO website will reveal that the use of such inequalities in patent claims is commonplace under current PTO practice and procedure.

In view of the foregoing, reconsideration and withdrawal of the objections to the abstract and specification are respectfully requested.

2. The PTO objected to the drawings in paragraph 4 of the Office Action.

Figs. 2(e) - 2(h), 6(c) and 7(b) shown in the present application are Comparative Example drawings and, as such, Applicants respectfully submit are not *de jure* prior art (from a date perspective) with respect to the present application. For example, Figs. 2(e) - 2(h) are photographs of a fiber array structure that is being compared to the fiber array structure shown in Figs. 2(a) - 2(d), which shows one possible embodiment of the present invention. Similarly, Figs. 6(c) and 7(b) illustrate Comparative Example structures that are compared to an embodiment of the present invention.

In view of the foregoing, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

3. The objection to claims 1-17 in paragraph 5 of the Office Action is noted, but deemed moot in view of rewritten claims 1 and 17 submitted above.

4. Claims 1-17 were rejected under §112, second paragraph in paragraph 7 of the Office Action. This rejection is respectfully traversed.

With respect to Office Action paragraphs 7(a) and 7(b), the discussion of the inequality in paragraph 1 of the present Amendment applies equally to this rejection. Accordingly, for the reasons discussed above, the §112, second paragraph rejection should be withdrawn.

With respect to Office Action paragraph 7(c), the distance between the flat surfaces of the substrate and the cover plate is defined by the thickness of the adhesive Y. As such, skilled artisans would easily understand that Y is (1) a distance between the flat surfaces of the substrate and the cover plate, and (2) a thickness of the adhesive layer. Applicants have

amended pending claims 1 and 17 in order to clarify that Y is a thickness of the adhesive between the flat surfaces of the substrate and the cover plate. Reconsideration and withdrawal of the §112, second paragraph rejection are respectfully requested.

5. Claims 1-17 were rejected under §103(a) over Watanabe et al. This rejection is respectfully traversed.

As discussed during the interview, this rejection was asserted in the February 20, 2003 Office Action and withdrawn in response to Applicants' April 28, 2003 Amendment. As such, for the reasons given in the April 28, 2003 Amendment (portions of which are summarized below), this rejection should be withdrawn.

Before discussing the rejection, Applicants discovered that delamination of the optical fiber array along peripheral areas (i.e., flat surfaces) on opposite sides of the V-grooves could be prevented by controlling the adhesive layer thickness (Y in the inequality recited in claims 1 and 17) between the substrate and the cover plate to be within a certain range. This is most clearly illustrated in Figs. 2(a)-(d) of the present application, which illustrate that the claimed invention prevents delamination of the claimed optical fiber array at the flat surface areas on opposite sides of the V-grooves. On the other hand, Comparative Example Figs. 2(e)-(h) clearly show that optical fiber arrays in which the thickness of the adhesive layer is not precisely controlled, such as that disclosed in the prior art (discussed below), are prone to the above-discussed delamination problem at the peripheral areas on opposite sides of the V-grooves.

In contrast to the statement at the top of page 6 of the current Office Action, in the February 20, 2003 Office Action, the PTO recognized that it is a well-settled principle of law that patent drawings cannot be used to show specific dimensional relationships between features of an invention, and provided calculated values for the thickness of Watanabe's

adhesive layer and the distance in Watanabe's device corresponding to L in the pending claims. The PTO stated in the February 20, 2003 Office Action that Fig. 4b of Watanabe shows an adhesive layer having a thickness (Y) of 87.38 μm between the flat surfaces of substrate 21 and pressing member 23. The PTO calculated the distance (L) to be 106.69 μm from a contact point between Watanabe's housed optical fibers and the housing grooves to a surface of the pressing member.

In the April 18, 2003 Amendment, the entirety of which is incorporated herein by reference, Applicants amended pending independent claim 1 to recite that a distance Y between the flat surfaces of the substrate and the cover plate is $L/6 \leq Y \leq L/2$. It was explained that, based on the PTO's own calculations discussed in the February 20, 2003 Office Action, $Y=87.38 \mu\text{m}$ and $L/2=53.35 \mu\text{m}$. Therefore, because Y (i.e., 87.38 μm) is greater than L/2 (i.e., 53.35 μm), Watanabe does not disclose or suggest a structure that would satisfy the inequality recited in pending claims 1 and 17. The PTO withdrew the rejection over Watanabe based on these arguments.

In view of all of the foregoing, reconsideration and withdrawal of the §103(a) rejection over Watanabe are respectfully requested.

6. Claims 1-17 were rejected under §103(a) over Hsu in view of EP 943,942 (assigned to the same Assignee as the present application). This rejection is respectfully traversed.

The May 21, 2004 Request for Reconsideration and the July 21, 2004 Amendment, the entireties of which are incorporated herein by reference, set forth specific arguments explaining the reasons why the above rejection is erroneous. As was the case in the June 21, 2004 Advisory Action, the statements in paragraph 10 of the current Office Action are not responsive to any of the specific points discussed in the May 21, 2004 Request for

Reconsideration of the July 21, 2004 Amendment (which was received in the PTO one day before the current Office Action was mailed). The PTO is respectfully requested to respond to each of the specific points discussed below.

POINT 1

Each of Hsu and EP '942 disclose an optical fiber array having a cover plate that has a narrower width than the lower substrate on which the cover plate is supported (e.g., see Fig. 2 of Hsu and Fig. 5 of EP '942). The PTO's position in the pending Office Action is that the sole motivation to combine Hsu and EP '942 would have been to provide the structure shown in Fig. 2 of Hsu with a cover plate that is smaller than the substrate, as shown in Fig. 5 of EP '942. Fig. 2 of Hsu, however, clearly shows that the width of glass plate 21 is already narrower than the width of the lower substrate. Based on the PTO's reasoning, the sole motivation for modifying Hsu's structure depends upon a feature (i.e., narrower cover plate) shown in EP '942 *that is already used in Hsu's optical array structure in the same manner as EP '942*. It defies logic to rely upon a feature from a secondary reference (EP '942) that is already present, and arranged in the same manner (i.e., smaller cover plate/wider substrate), in a primary reference (Hsu) as the motivation for combining primary and secondary references. This rejection should be withdrawn for this reason alone.

POINT 2

EP '942 attributes improved adhesive bonding strength and reliability to the structure shown in EP '942 Fig. 5 (i.e., narrower cover plate/wider substrate) as compared to the structure shown in Fig. 6 of EP '942 (i.e., same width cover plate and substrate). There is, however, absolutely no evidence in this record that compares the adhesive bonding strength of the structure shown in EP '942 Fig. 5 to the adhesive bonding strength attributable to the structure shown in Fig. 2 of Hsu. As such, upon reading EP '942 skilled artisans would have

had absolutely no reason to believe that the adhesive bonding strength of the structure shown in EP '942 Fig. 5 would be any greater than the adhesive bonding strength of the structure shown in Fig. 2 of Hsu. Any conclusion to the contrary is based purely on speculation, which certainly cannot form the basis for an obviousness rejection.

POINT 3

The PTO has never explained the reasons why it believes that pending claim 17 is not patentably distinct over the prior art of record. Pending claim 17 recites that the distance Y between the flat surfaces of the substrate and the cover plate is maintained over the entire length of the cover plate. The PTO's calculation with respect to the inequality recited in pending claim 1 (which is also recited in pending claim 17) is based solely on the dimensional relationships of the structures shown in the front view (Fig. 2) of Hsu's optical fiber array. Indeed, none of Hsu's drawings show the position of substrate 16 with respect to glass plate 21 in any view other than the front cross-sectional view shown in Fig. 2 of Hsu. As such, there is no disclosure in Hsu that the dimensional relationships between the structures shown in Hsu's front cross-view are maintained over the entire length of glass plate 21. Any conclusion to the contrary would be based on unfounded speculation.

For example, since Hsu's optical fibers 12 include portions in which the diameter of the fibers are varied, one would understand that Hsu's front view dimensional relationships are not satisfied over the entire length of glass plate 21. This is so because if glass plate 21 were to extend over fiber portion 34 shown in Fig. 5 of Hsu, for example, a cross-sectional view taken at a position near fiber portion 34 would reveal that the dimensional relationships between the structures at fiber portion 34 would be different from the dimensional relationships between the structures at fiber portion 33 (which corresponds to Hsu's front

view show in Fig. 2). Accordingly, claim 17 provides additional patentable distinctions over Hsu.


In view of all of the foregoing, reconsideration and withdrawal of the §103(a) rejection over Hsu in view of EP '942 are respectfully requested.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

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Date


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